

## OBSERVATIONS OF WINTER FOOD CACHING BY THE RICHARDSON'S MERLIN

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Reports of food caching and retrieval are common in both wild and captive raptors. These behavior patterns have been observed in the American Kestrel (*Falco sparverius*) (Tordoff 1955; Mueller 1974), Northern Goshawk (*Accipiter gentilis*) (Schnell 1958), Prairie Falcon (*Falco mexicanus*) (Oliphant and Thompson 1976), Lizard Buzzard (*Kaupifalco nongrammicus*) Peregrine Falcon (*Falco peregrinus*) and Secretary Bird, (*Sagittarius serpentarius*) (Brown and Amadon 1968: 78) as well as many species of owls (Collins 1976). Food caching by the Merlin (*Falco columbarius*) has been reported during the breeding season (Oliphant 1974; Oliphant and Thompson 1976) and also during the winter (Pitcher et al. 1979; Bud Anderson, pers. comm.).

The observations herein were collected as part of a wintering ecology study of the Merlin in Saskatoon, Saskatchewan. Using a mobile null peak antenna system, I.G.W. monitored the activities of 3 Merlins fitted with tail-mounted transmitters (Model SM-1, AVM Instrument Company): a 2-yr old male and 5-yr old female banded as nestlings in Saskatoon and a 2-yr old female banded as a nestling in Regina, Saskatchewan. The female from Regina was brought to the Western College of Veterinary Medicine in Saskatoon for treatment of an ulna fracture suffered on 5 December 1983 and released in the city on 25 January 1984. The 2 others were trapped in Saskatoon, fitted with transmitters and released within 2 h of capture. The average temperature in Saskatoon during February 1984, when these observations were made, was  $-4^{\circ}\text{C}$ .

The 2-yr old female was monitored for 225 h over a 49 d period. During this time her food caching and retrieval activities centered around a linear grouping of 6 spruce trees ranging in height from 3 m at one end to 5 m at the other. On 3 February 1984 at 0830 H she perched on the second tallest spruce and began a searching pattern that consisted of hopping from branch to branch, carefully examining each one as she worked her way down the tree. She concentrated her search on one side of the tree starting on a branch about 3 m high and ending

up on the ground below the tree. After examining the ground under the tree for 1 min she flew to a distant perch to begin hunting. During the day she caught and ate 2 House Sparrow (*Passer domesticus*), then returned at 1540 H to perch on the same tree visited that morning. At 1600 H she twice repeated her search of the same area of the tree before perching on an adjacent spruce. From this vantage point she spotted a rodent on the ground below the tree that she had presumably cached in the tree previously. She flew down to pick up the prey and carried it to a nearby power pole and ate it. Her return to the same tree and success in finding cached prey suggests that the behavior exhibited that morning was an unsuccessful retrieval attempt.

On 5 February 1984 this same female caught and ate a House Sparrow at 0935.H After 3.5 h she began to hunt again and at 1330 H caught a sparrow and carried it to the tallet spruce tree in the group. Perched on a branch halfway up the tree and about 1 m from the trunk, she plucked feathers from the sparrow's head and neck for 2 min, then used her beak to carefully place the carcass in a fork of the branch she was perched on. She left to continue hunting and at 1430 H she captured another House Sparrow. During the remainder of the afternoon, she made 5 hunting attempts but failed to kill again. At 1745 H she retrieved her cache of that afternoon by flying directly to the fork in the branch used to support the carcass. She carried it in her feet to a perch 50 m away to eat. On the morning of 8 February 1984 the Merlin perched in a spruce tree making only 1 unsuccessful hunting attempt on a House Sparrow. At 1105 H she returned to the tree used for caching on 3 February 1984 and immediately located a cached House Sparrow on a branch about 3 m high.

I.G.W. observed the male Merlin on 22 February 1984 at 1730 H using the same searching pattern as the female. He began his search on a branch 3 m up a spruce tree and hopped branch by branch to the ground twice before flying to a lamp post across the street. Within a minute he returned to a branch in the same area of the tree and emerged with the fully plucked hind quarters of a small bird. Due to

transmitter failure this bird was only observed for 8 h over a 2 d period.

During 65 h of observations over an 11 d period, the 5-yr old female was observed to use a cache once. She flew directly to a branch near the top of a 10 m high spruce at 1430 H on 25 February 1984 to retrieve a cached House Sparrow that she carried to a nearby elm to eat.

The 2-yr old female displayed a sequence of caching followed immediately by a return to hunting on 5 February 1984. This suggests that she was hunting in the absence of an immediate food need, caching food for a period of prey scarcity or greater caloric demand. The attempted retrieval at 0830 H on 3 February 1984 may represent such a situation where the previous night's temperature was 5°C lower than the nightly low of the 3 preceding nights. At least 2 retrievals described above were caches left overnight. With average nightly temperatures of -8.5°C during February 1984, these carcasses would have been frozen. There were no observed behavioral changes in the pattern of eating a frozen carcass but the caloric value of a frozen sparrow may be less.

During 225 h of observations, the 2-yr old female used only the 2 spruce trees mentioned for caching food. This is similar to Tordoff's captive American Kestrel (1955), which consistently used the same hiding place for its excess food. Stendell and Waian (1968) also noted the extended use of one tree for caching in wild American Kestrels. Oliphant and Thompson (1976) found that Merlins seldom used the same tree for caching during the breeding season. The difference in the pattern of food caching in Merlins between wintering and breeding periods may be the result of the degree of piracy by other birds. Consistent use of the same tree should make retrieval easier but the dense Black-billed Magpie (*Pica pica*) and American Crow (*Corvus brachyrhynchos*) populations during the breeding season may

make piracy a greater problem. Individual difference may also account for the degree of consistency.

All 3 Merlins monitored exhibited food caching behavior. This, along with the frequent use of caches by the 2-yr old female, suggests that this behavior is advantageous and plays an important role in their wintering ecology.

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